ASILUFC5 - ASILUFC51
AS-i Communication Module
User Manual

10/2005

eng V2.0

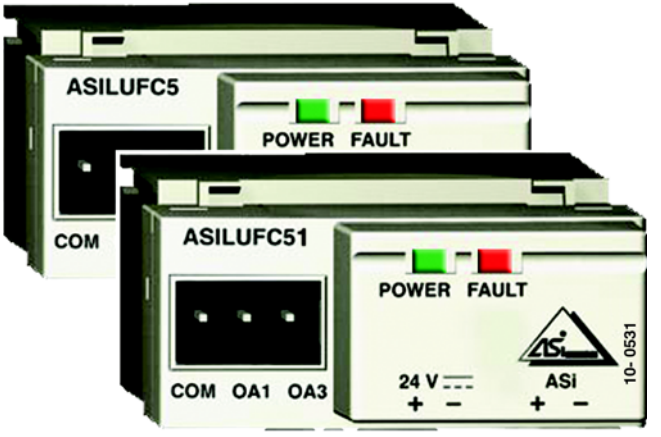

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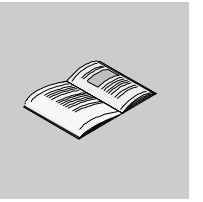
Table of Contents



Safety Information 5

About the Book 7

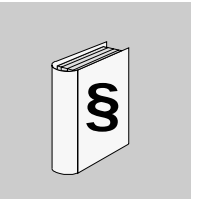
Chapter 1 Hardware Implementation 9

Introduction to Hardware Implementation 9
Description and Installation 10
Connections 14
Technical Characteristics 17

Chapter 2 Software Implementation 19

Introduction to Software Implementation 19
Configuration Software 20
Addressing 22
Description of the I/O Variables on the ASILUFC5/ASILUFC51 Module 23
Managing Faults 24

Safety Information



Important Information

NOTICE

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of this symbol to a Danger or Warning safety label indicates that an electrical hazard exists, which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates an imminently hazardous situation, which, if not avoided, **will result** in death, serious injury, or equipment damage.

⚠ WARNING

WARNING indicates a potentially hazardous situation, which, if not avoided, **can result** in death, serious injury, or equipment damage.

⚠ CAUTION

CAUTION indicates a potentially hazardous situation, which, if not avoided, **can result** in injury or equipment damage.

PLEASE NOTE

Electrical equipment should be serviced only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material. This document is not intended as an instruction manual for untrained persons.

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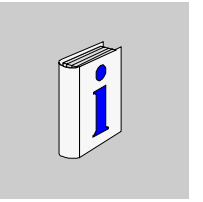
About the Book



At a Glance

Document Scope

This manual describes the implementation, functionalities and operation of the TeSys U AS-i communication module (ASILUFC5 or extended ASILUFC51).

Field of application: mainly automation systems in industry and building areas.

Validity Note

The data and illustrations in this manual are not contractual. We reserve the right to modify our products in line with our policy of continuous development. The information given in this document may be modified without notice and must not be interpreted as binding on the part of Schneider Electric.

Related Documents

Title of Documentation	Reference Number
TeSys U Communication Variables - User's Manual	1744082
LUTM Model U Controller - User's Manual	1743233
LUCM/LUCMT Multifunction Control Unit - User's Manual	1743237

Product Related Warnings

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Hardware Implementation

1

Introduction to Hardware Implementation

Overview

This chapter describes the installation and technical characteristics of a TeSys U AS-i communication module (ASILUFC5 or extended ASILUFC51).

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Description and Installation	10
Connections	14
Technical Characteristics	17

Description and Installation

Introduction

The AS-i ASILUFC5 or extended ASILUFC51 communication module connects the TeSys U starters-controllers to the AS-i wiring system for direct or remote control.

The different operation conditions of the AS-i ASILUFC5 or ASILUFC51 AS-i communication module (AS-i bus voltage presence, communication fault on AS-i bus, addressing fault, ...) are displayed on the front panel by two light-emitting diodes (green and red).

Module operation is continuously monitored by self-tests. This is totally transparent to the user.

The integration of AS-i V2 functions enables remote module diagnostics via the bus or local diagnostics via the ASITERV2 and XZMC11 addressing terminals.

The module must be supplied with a 24V DC auxiliary source and must only be used with the LUC••BL 24V DC control units.

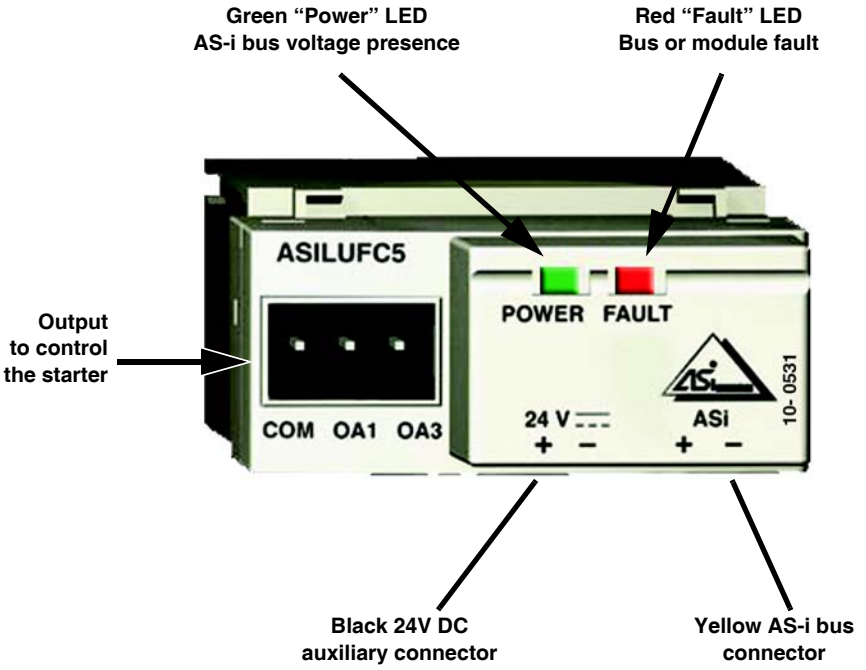
⚠ WARNING

IMPROPER COMMUNICATION PORT USAGE

- Use communication ports for transfer of non-critical data only.
- The data provided by monitoring contactor status and current levels is delayed by transmission time. Do not use this data for critical control decisions.
- Verify function settings before starting the motor.
- Do not use functions such as Run, Stop and Reverse for emergency or critical control applications.

Failure to follow this instruction can result in death, serious injury, or equipment damage.

Description



Description of ASILUFC5 or ASILUFC51 different states of LEDs.

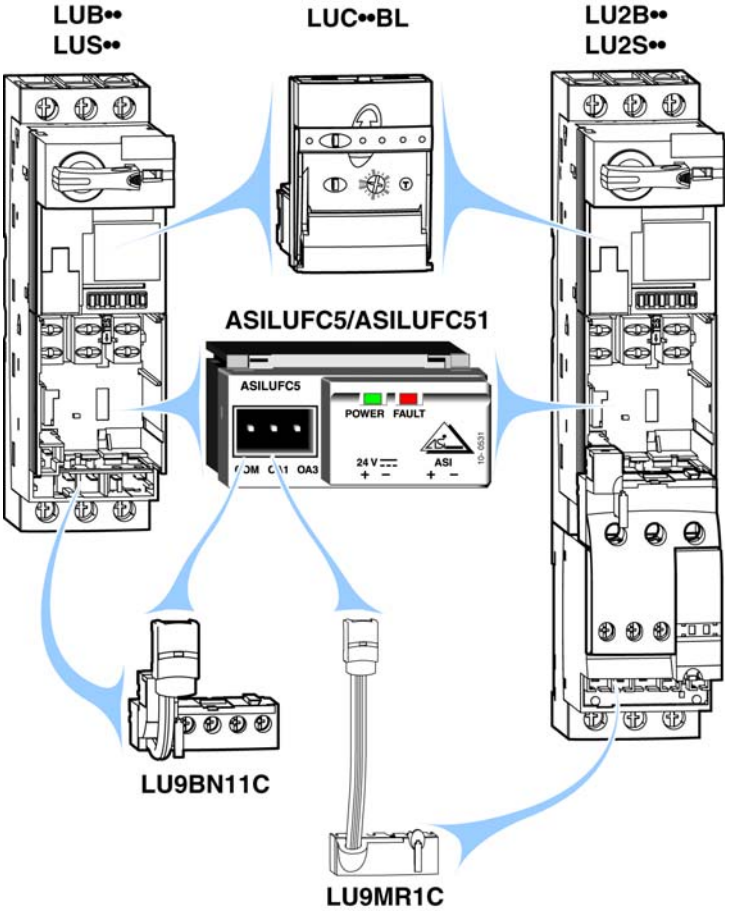
Light Emitting Diodes (LEDs)	Status	Meaning
Green "Power" LED	On	AS-i bus voltage present
	Off	No AS-i bus voltage
Red "fault" LED	On	No exchange with the Master (Communication fault on AS-i bus)
		Addressing fault (address is factory-set to 0)
	Flashing	No 24V DC auxiliary voltage
		Motor feed engaged in the "TRIP" position
	Off	No fault

Installation

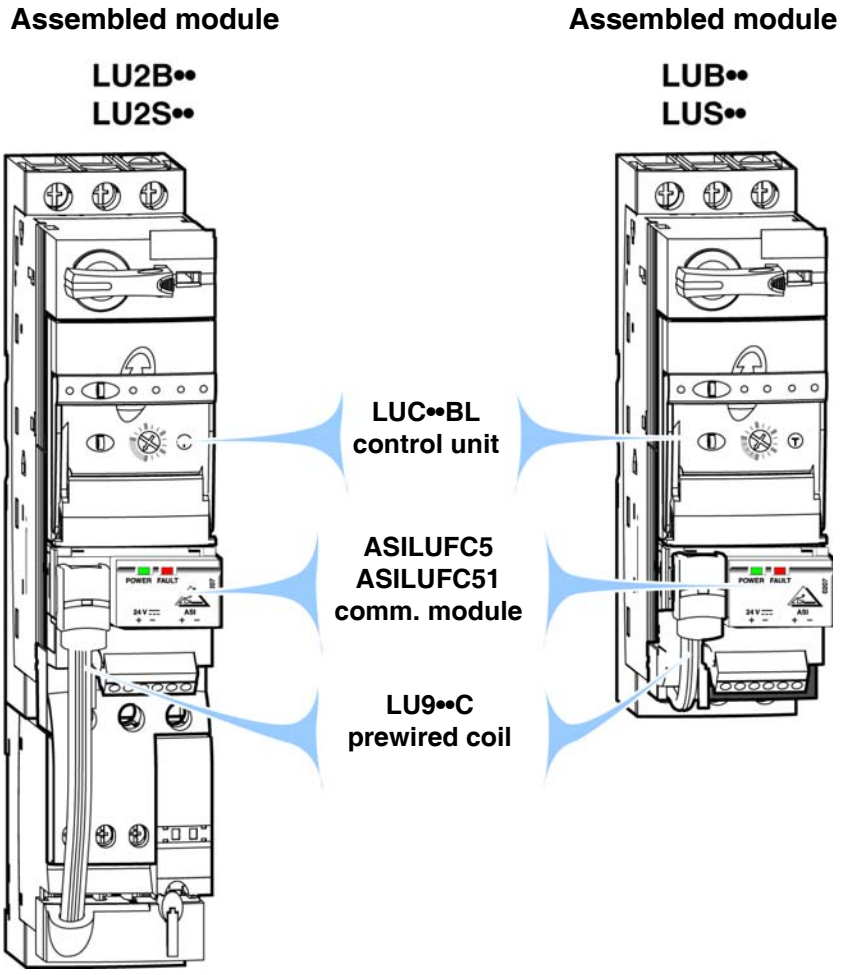
The AS-i ASILUFC5 or ASILUFC51 communication module is easily installed in the power base (LUB••/LUS•• or LU2B••/LU2S••) under the LUC••BL control unit that locks it into position.

It must be assembled in the following order:

1. Install the ASILUFC5 or ASILUFC51 module.
2. Install the LUC••BL control unit.
   Note: *The control unit must be 24V DC.*
3. The Output control connector can be connected by wire using LUBN11C cable (for LUB••/LUS••) or LU9MR1C cable (for LU2B••/LU2S••).
   Note: *Direct wiring can be used, for example, to insert external stop control or a voltage interface.*



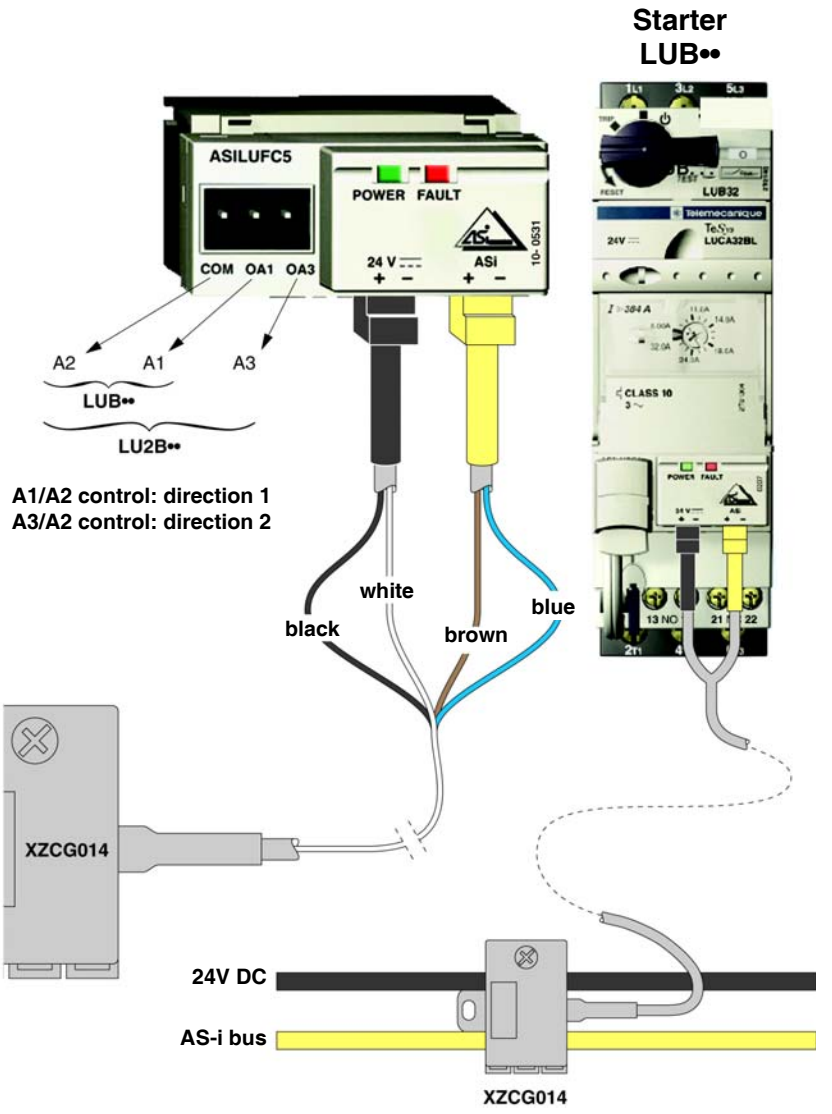
Once all components have been installed, here are complete power bases:



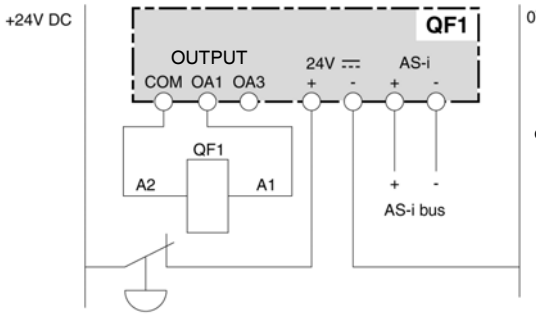
Connections

Electrical Connections

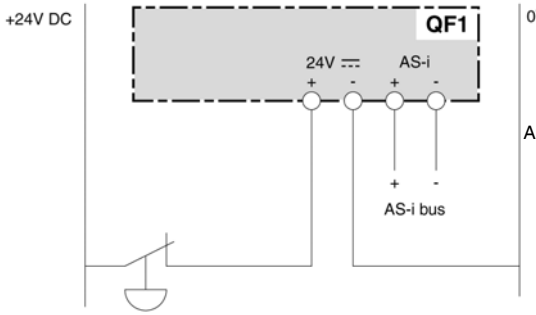
The connections to the AS-i bus and auxiliary 24V DC are made using XZCG•• connecting accessories.



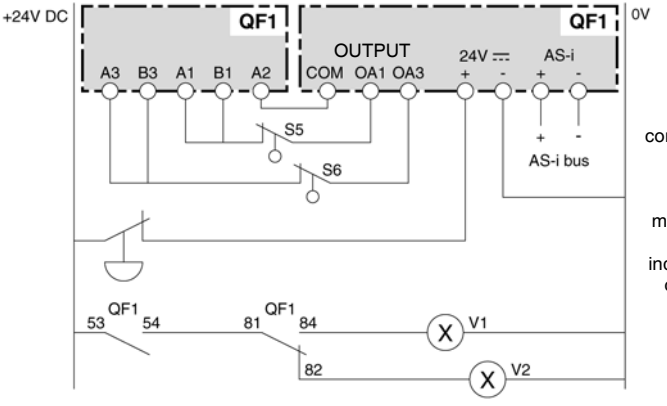
Examples of Application Diagrams



Control by AS-i communication module without coil pre-wiring and with main emergency stop



Control by AS-i communication module with coil pre-wiring and main emergency stop



Control by AS-i communication module without coil pre-wiring and with main emergency stop and indicating lights for the operating direction and upper and lower level end stops.

Connection Capacities

The following table shows the conductor cross-sections that may be used on ASILUFC5 / ASILUFC51 terminals:

Connection	Conductor type	AS-i / 24V aux Conductor Cross-section (min. - max.)	Control / Monitor Conductor Cross-section (min. - max.)
1 conductor	• Rigid conductor • Flexible conductor	• 0.2 to 1.5 mm^2 [24 to 16 AWG] • 0.2 to 1.5 mm^2 [24 to 16 AWG]	• 0.14 to 1 mm^2 [26 to 18 AWG] • 0.14 to 1 mm^2 [26 to 18 AWG]
	Flexible conductor with cable end: • without an insulating inlet taper • with an insulating inlet taper	• 0.25 to 1.5 mm^2 [24 to 16 AWG] • 0.25 to 1.5 mm^2 [24 to 16 AWG]	• 0.25 to 1.0 mm^2 [24 to 18 AWG] • 0.25 to 0.5 mm^2 [24 to 20 AWG]
2 conductors (same cross-section)	• 2 rigid conductors • 2 flexible conductors	• 0.2 to 1.0 mm^2 [24 to 18 AWG] • 0.2 to 1.0 mm^2 [24 to 18 AWG]	• 0.14 to 0.5 mm^2 [26 to 20 AWG] • 0.14 to 0.75 mm^2 [26 to 20 AWG]
	2 flexible conductors with cable end: • without an insulating inlet taper • with an insulating inlet taper	• 0.25 to 1.0 mm^2 [24 to 18 AWG] • 0.5 to 1.5 mm^2 [20 to 16 AWG)	• 0.25 to 0.34 mm^2 [24 to 22 AWG] • 0.5 mm^2 [20 AWG]

Connectors	2 pins	3 pins
Pitch	5.08 mm [0.20 in.]	3.81 mm [0.15 in.]
Tightening torque	4.4 to 5.3 lb-in [0.5 / 0.6 N.m.]	4.4 to 5.3 lb-in [0.5 / 0.6 N.m.]
Flat screwdriver	3.5 mm [0.14 in.]	2.5 mm [0.10 in.]

Technical Characteristics

Technical Characteristics

Module certification	ASI	
Protection class	Complying with IEC 539	IP20
Immunity to fast transients	Complying with IEC 1000-4-4 / EN 610004-4 level 4	2kV
AS-i power supply		26.5V - 31.6V
Current consumed	On the AS-i bus	25mA in normal operation. 30mA in fault.
Auxiliary power supply		24V DC +/- 30%
Current consumed	On the 24V auxiliary	Depends on the load connected to the outputs. Limited to 500mA
Relay output rating	Short-circuit and overload protected	0.5A / 24V

Software Implementation

2

Introduction to Software Implementation

Overview

Hardware implementation of an ASILUFC5 / ASILUFC51 AS-i communication module is being followed by its software implementation.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Configuration Software	20
Addressing	22
Description of the I/O Variables on the ASILUFC5/ASILUFC51 Module	23
Managing Faults	24

Configuration Software

AS-i Comm. Module and PL7 Software

The AS-i communication module is configured with the PL7 Micro/Junior/Pro software.

All the slave equipment corresponding to all the inputs/outputs of the AS-i bus can be configured from the PLC interface declaration screen.

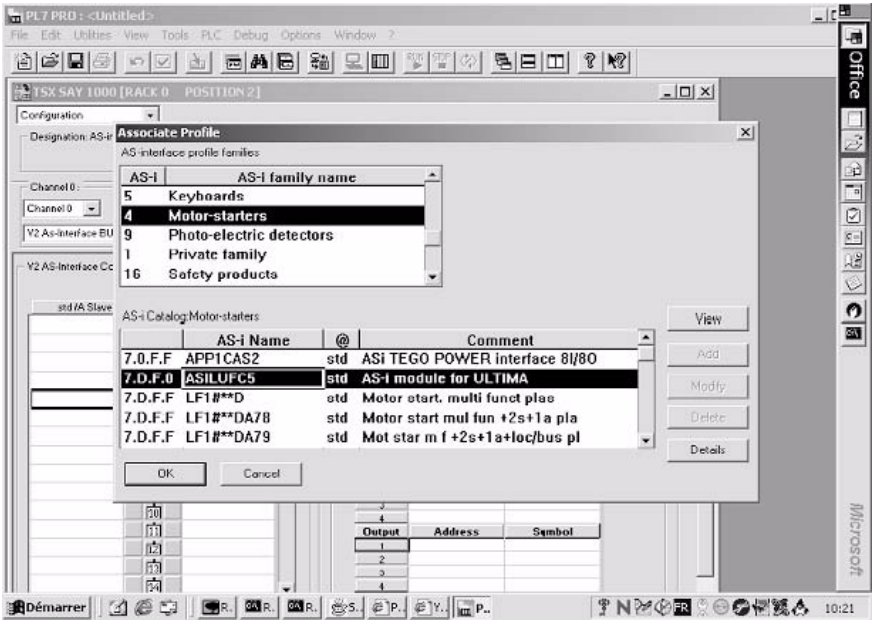
Used with the Master PLC interface TSXSAY 1000 and to retain interchangeability compatibility with the motor starters in box LF1/LF2.

The 7.D.F.0 motor start profile limits the configuration to 31 slave devices as a maximum. In fact, an ASILUFC5 / ASILUFC51 module occupies the 2 addresses of banks A and B. The 7.A.7.E motor start profile limits the configuration to 62 slave devices as a maximum.

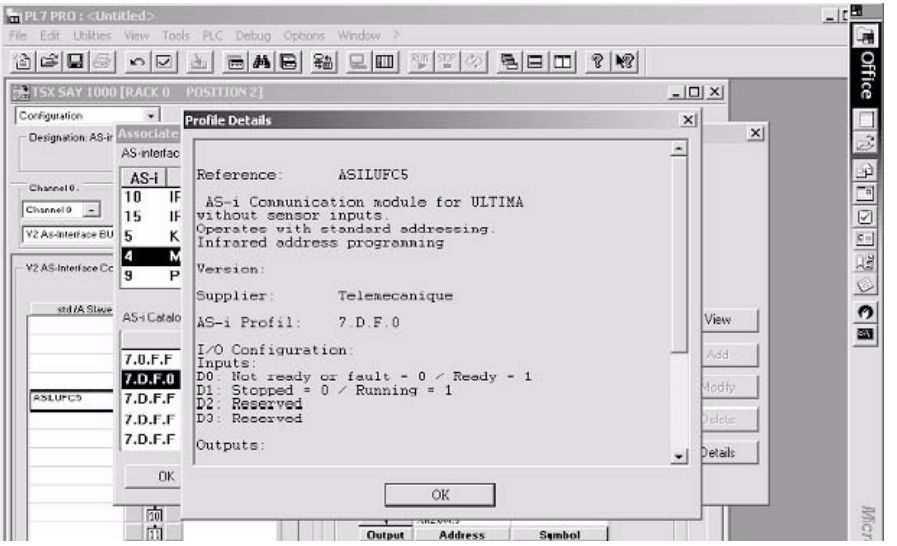
The ASILUFC5 configuration is guided by the screen sequence. The following is a configuration example with the Premium TSXSAY 1000 PLC interface.

Configuration Example (Steps 1-2)

Configuration example: step 1



Configuration example: step 2

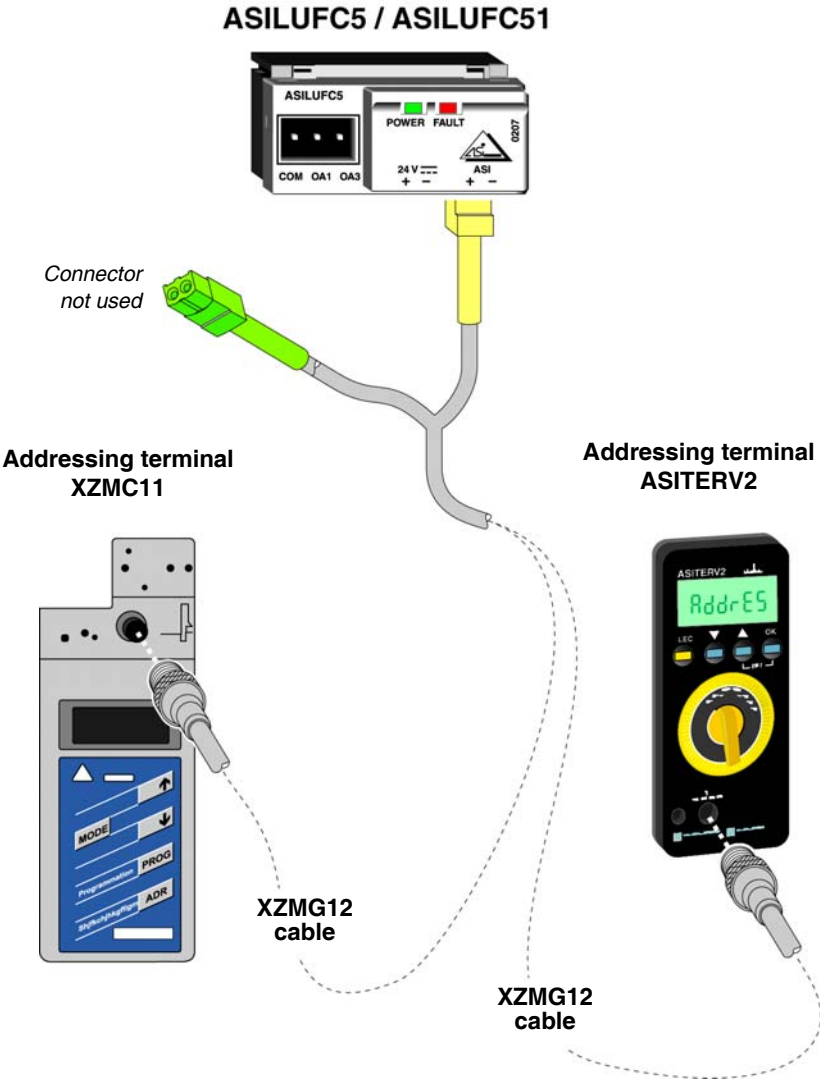


Addressing

Description of Addressing

Here is a view of the links with an addressing terminal, which can be of two differents types:

- referenced as ASITERV2,
- referenced as XZMC11.



Description of the I/O Variables on the ASILUFC5/ASILUFC51 Module

AS-i Profiles

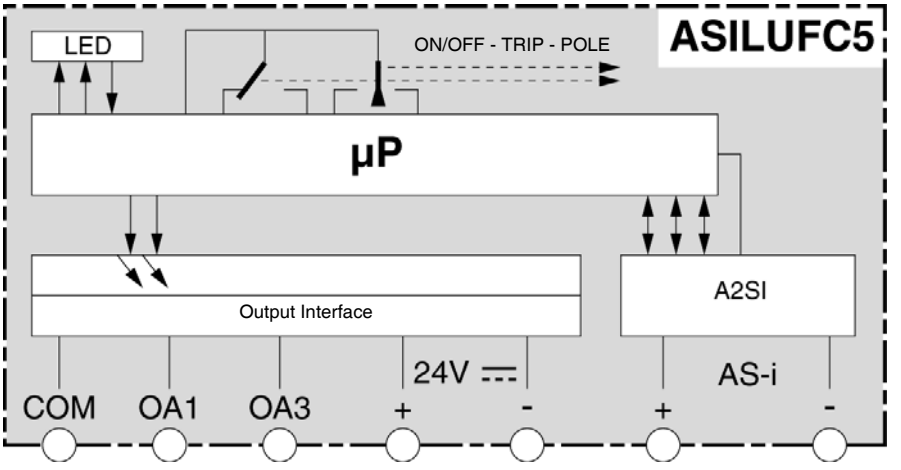
The following table describes the input and output variables associated to the AS-i profiles:

AS-i Profiles: 7.D.F.0 (for ASILUFC5) or 7.A.7.E (for ASILUFC51)			
Current consumed on the AS-i bus	15mA typical		
Bit value		= 0	= 1
Data bits (commands) (Outputs)	D0	Stop direct direction	Run forward direction
	D1	Stop reverse direction	Run reverse direction
	D2	Reserved	Reserved
	D3	Reserved	Reserved
Data bits (status) (Inputs)	D0	Not ready or in fault	Ready
	D1	Stopped	Running
	D2	Reserved	Reserved
	D3	Reserved	Reserved

If D0 and D1 output bits are set to 1 at the same time, the motor stops.

Note: The parameter bits are reserved.

Schematic diagram



The ON, OFF, TRIP and power contact states are transmitted via a mechanical link.

Managing Faults

Description of the Faults

Fault	Causes	Corrective actions
Green "Power" LED Off	No AS-i bus voltage	Check the state of the AS-i power supply
		Check the cables and the connecting terminals
		Check the polarity of the power supply wire
Red "Fault" LED flashing	No 24V DC auxiliary voltage	Check the state of the auxiliary power supply
		Check the cables and connection terminals
		Check the polarity of the power supply wire
	Motor feed engaged in the "TRIP" position	Remove the cause of the fault
		Rearm the product
Red "Fault" LED permanently On	No exchange with the Master (Communication fault on AS-i bus)	Check the connection to the Master
		Check if the Master is set to Run
		Check if the 24V AS-i and 24V DC auxiliary connections are not reversed
	Addressing fault (Address factory-set to 0)	Set an address from 1 to 31 (ASILUFC5) or 1 to 62 (ASILUFC51)